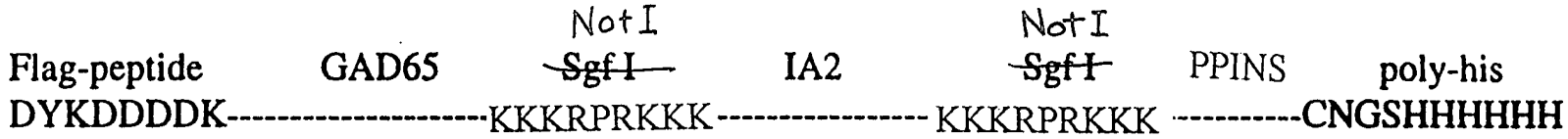
NotI
NotI
Flag-peptide
GAD65
SgfI
IA2
SgfI
PPINS
poly-his
DYKDDDDK
KKKRPRKKK
KKKRPRKKK
CNGSHHHHHH

FIG. 1a

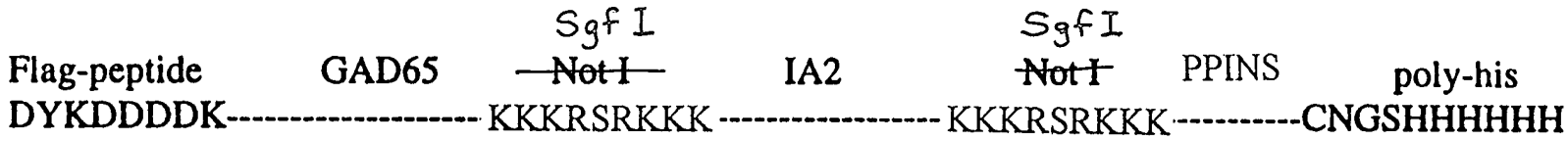
SgfI
SgfI
Flag-peptide
GAD65
NotI
IA2
NotI
PPINS
poly-his
DYKDDDDK
KKKRSRKKK
KKKRSRKKK
CNGSHHHHHH

FIG. 1b

IA2 Underlined aa 771-979 Accession No. L18983

MRRPRRPGGLGGSGGLRLLLCLLLLSSRPGGCSAVSAHGCLFDRRLCSHLEVCIQDGLFGQCQVGVGQARPLLQVTSPVLQRL
QGVLRQLMSQGLSWHDDLTQYVISQEMERIPRLRPPEPRPRDRSGLAPKRPGPAGELLLQDIPTGSAPAAQHRLPQPPVGKGG
AGASSSLSPLQAELLPPLLEHLLLPPQPPHPSLSYEPALLQPYLFHQFGSRDGSRVSEGSPGMVSVGPLPKAEAPALFSRTASKGI
FGDHPGHSYGDLPGPSPAQLFQDSGLLYLAQELPAPSRARVPRLPEQGSSSRAEDSPEGYEKEGLGDRGEKPASPAVQPDAAL
QRLAAVLAGYGVELRQLTPEQLSTLLTLLQLLPKGAGRNPGGVVNVGADIKKTMEGPVEGRDTAELPARTSPMPGHPTASPT
SSEVQQVPSPVSSEPPKAARPPVTPVLLEKKSPLGQSQPTVAGQPSARPAAEEYGYIVTDQKPLSLAAGVKLLEILAEHVHMSS
GSFINISVVGPALTFRIRHNEQNLSLADVTQQAGLVKSELEAQTGLQILQTGVGQREEAAAVLPQTAHSTSPMRSVLLTLVALA
GVAGLLVALAVALCVRQHARQQDKERLAALGPEGAHGDTTFEYQDLCRQHMATKSLFNRAEGPPEPSRVSSVSSQFSDAAQ
ASPSSHSSTPSWCEEPAQANMDISTGHMILAYMEDHLRNRDRLAKEWQALCAYQAEPNTCATAQGEGNIKKNRHPDFLPYDH
ARIKLKVESSPSRSDYINASPIIEHDPRMPAYIATQGPLSHTIADFWQMVWESGCTVIVMLTPLVEDGVKQCDRYWPDEGASLY
HVYEVNLVSEHIWCEDFLVRSFYLKNVQTQETRTLTQFHFLSWPAEGTPASTRPLLDFRRKVNKCYRGRSCPIIVHCSDGAGR
TGTYILIDMVLNRMAKGVKEIDIAATLEHVRDQRPGLVRSKDQFEFALTAVAEEVNAILKALPQ

FIG. 2a

GAD65 Underlined aa102-585 Accession No. M74826

MASPGSGFWSFGSEDGSGDSENPGTARAWCQVAQKFTGGIGNKLCALLYGDAEKPAESGGSQPPRAAARKAACACDQKPCS
CSKVDVNYAFLHATDLLPACDGERPTLAFLQDVMNILLQYVVKSFDRSTKVIDFHYPNELLQEYNWELADQPQNLEEILMHC
QTTLKYAIKTGHPRYFNQLSTGLDMVGLAADWLTSTANTNMFTYEIAPVFVLLEYVTLKKMREIIGWPGGSGDGIFSPGGAIS
NMYAMMIARFKMFPEVKEKGMAALPRLIAFTSEHSHFSLKKGAAALGIGTDSVILIKCDERGKMIPSDLERRILEAKQKGFVPF
LVSATAGTTVYGAFDPLLAVADICKKYKIWMHVDAAWGGGLLMSRKHKWKLSGVERANSVTWNPHKMMGVPLQCSALLV
REEGLMQNCNQMHASYLFQQDKHYDLSYDTGDKALQCGRHVDVFKLWLMWRAKGTTGFEAHVDKCLELAEYLYNIIKNR
EGYEMVFDGKPQHTNVCFWYIPPSLRTLEDNEERMSRLSKVAPVIKARMMEYGTTMVSYQPLGDKVNFFRMVISNPAATHQ
DIDFLIEEIERLGQDL

FIG. 2b

Translation Human preproinsulin.
EMBL accession nr. v00565

MALWMRLLPLLALLALWGPDPAAAFVNQHLCGSHLVEALYLVCGERGFFYT
PKTRREAEDLQVGQVELGGGPGAGSLQPLALEGSLQKRGIVEQCCTSICSLYQ
LENYCN

FIG. 2c

09/015,349

Human GAD65 nucleotide sequence

M74826 Length: 2457 September 1, 1995 12:22 Type: N Check: 8038 ..

1 ACCCGCCCTC GCCGCTCGGC CCCGCGCGTC CCCGCGCGTG CCCTCCTCCC

51 GCCACACGGC ACGCACGCGC GCGCAGGGCC AAGCCGAGGC AGCCGCCCGC

101 AGCTCGCACT CGCTGGCGAC CTGCTCCAGT CTCCAAAGCC GATGGCATCT

151 CCGGGCTCTG GCTTTTGGTC TTTCGGGTCG GAAGATGGCT CTGGGGATTC

201 CGAGAATCCC GGCACAGCGC GAGCCTGGTG CCAAGTGGCT CAGAAGTTCA

251 CGGGCGGCAT CGGAAACAAA CTGTGCGCCC TGCTCTACGG AGACGCCGAG

301 AAGCCGGCGG AGAGCGGCGG GAGCCAACCC CCGCGGGCCG CCGCCCGGAA

351 GGCCGCCTGC GCCTGCGACC AGAAGCCCTG CAGCTGCTCC AAAGTGGATG

401 TCAACTACGC GTTTCTCCAT GCAACAGACC TGCTGCCGGC GTGTGATGGA

451 GAAAGGCCCA CTTTGGCGTT TCTGCAAGAT GTTATGAACA TTTTACTTCA

501 GTATGTGGTG AAAAGTTTCG ATAGATCAAC CAAAGTGATT GATTTCCATT

551 ATCCTAATGA GCTTCTCCAA GAATATAATT GGGAATTGGC AGACCAACCA

601 CAAAATTTGG AGGAAATTTT GATGCATTGC CAAACAACTC TAAAATATGC

651 AATTAAAACA GGGCATCCTA GATACTTCAA TCAACTTTCT ACTGGTTTGG

701 ATATGGTTGG ATTAGCAGCA GACTGGCTGA CATCAACAGC AAATACTAAC

751 ATGTTCACCT ATGAAATTGC TCCAGTATTT GTGCTTTTGG AATATGTCAC

801 ACTAAAGAAA ATGAGAGAAA TCATTGGCTG GCCAGGGGGC TCTGGCGATG

851 GGATATTTTC TCCCGGTGGC GCCATATCTA ACATGTATGC CATGATGATC

901 GCACGCTTTA AGATGTTCCC AGAAGTCAAG GAGAAAGGAA TGGCTGCTCT

951 TCCCAGGCTC ATTGCCTTCA CGTCTGAACA TAGTCATTTT TCTCTCAAGA

1001 AGGGAGCTGC AGCCTTAGGG ATTGGAACAG ACAGCGTGAT TCTGATTAAA

1051 TGTGATGAGA GAGGGAAAAT GATTCCATCT GATCTTGAAA GAAGGATTCT

1101 TGAAGCCAAA CAGAAAGGGT TTGTTCCTTT CCTCGTGAGT GCCACAGCTG

1151 GAACCACCGT GTACGGAGCA TTTGACCCCC TCTTAGCTGT CGCTGACATT

1201 TGCAAAAAGT ATAAGATCTG GATGCATGTG GATGCAGCTT GGGGTGGGGG

1251 ATTACTGATG TCCCGAAAAC ACAAGTGGAA ACTGAGTGGC GTGGAGAGGG

FIG. 3a

Human IA-2 nucleotide sequence

L18983 Length: 3613 November 20, 1997 16:45 Type: N Check: 6409

1 CAGCCCCTCT GGCAGGCTCC CGCCAGCGTC GCTGCGGCTC CGGCCCGGGA

51 GCGAGCGCCC GGAGCTCGGA AAGATGCGGC GCCCGCGGCG GCCTGGGGGT

101 CTCGGGGGAT CCGGGGGTCT CCGGCTGCTC CTCTGCCTCC TGCTGCTGAG

151 CAGCCGCCCG GGGGGCTGCA GCGCCGTTAG TGCCCACGGC TGTCTATTTG

201 ACCGCAGGCT CTGCTCTCAC CTGGAAGTCT GTATTCAGGA TGGCTTGTTT

251 GGGCAGTGCC AGGTGGGAGT GGGGCAGGCC CGGCCCCTTT TGCAAGTCAC

301 CTCCCCAGTT CTCCAACGCT TACAAGGTGT GCTCCGACAA CTCATGTCCC

351 AAGGATTGTC CTGGCACGAT GACCTCACCC AGTATGTGAT CTCTCAGGAG

401 ATGGAGCGCA TCCCCAGGCT TCGCCCCCCA GAGCCCCGTC CAAGGGACAG

451 GTCTGGCTTG GCACCCAAGA GACCTGGTCC TGCTGGAGAG CTGCTTTTAC

501 AGGACATCCC CACTGGCTCC GCCCCTGCTG CCCAGCATCG GCTTCCACAA

551 CCACCAGTGG GCAAAGGTGG AGCTGGGGCC AGCTCCTCTC TGTCCCCTCT

601 GCAGGCTGAG CTGCTCCCGC CTCTCTTGGA GCACCTGCTG CTGCCCCCAC

651 AGCCTCCCCA CCCTTCACTG AGTTACGAAC CTGCCTTGCT GCAGCCCTAC

701 CTGTTCCACC AGTTTGGCTC CGTGATGGC TCCAGGGTCT CAGAGGGCTC

751 CCCAGGGATG GTCAGTGTCG GCCCCCTGCC CAAGGCTGAA GCCCCTGCCC

801 TCTTCAGCAG AACTGCCTCC AAGGGCATAT TTGGGGACCA CCCTGGCCAC

851 TCCTACGGGG ACCTTCCAGG GCCTTCACCT GCCCAGCTTT TTCAAGACTC

901 TGGGCTGCTC TATCTGGCCC AGGAGTTGCC AGCACCCAGC AGGGCCAGGG

951 TGCCAAGGCT GCCAGAGCAA GGGAGCAGCA GCCGGGCAGA GGACTCCCCA

1001 GAGGGCTATG AGAAGGAAGG ACTAGGGGAT CGTGGAGAGA AGCCTGCTTC

1051 CCCAGCTGTG CAGCCAGATG CGGCTCTGCA GAGGCTGGCC GCTGTGCTGG

1101 CGGGCTATGG GGTAGAGCTG CGTCAGCTGA CCCCTGAGCA GCTCTCCACA

1151 CTCCTGACCC TGCTGCAGCT ACTGCCCAAG GGTGCAGGAA GAAATCCGGG

1201 AGGGGTTGTA AATGTTGGAG CTGATATCAA GAAAACAATG GAGGGGCCGG

1251 TGGAGGGCAG AGACACAGCA GAGCTTCCAG CCCGCACATC CCCCATGCCT

FIG. 3c

PREPROINSULIN

Exon sequences, i.e. sequences to be used in the patent are underlined and represent exon sequences.

V00565 Length: 4992 December 18, 1997 17:50 Type: N Check: 9721 ..

1 CTCGAGGGGC CTAGACATTG CCCTCCAGAG AGAGCACCCA ACACCCTCCA

51 GGCTTGACCG GCCAGGGTGT CCCCTTCCTA CCTTGGAGAG AGCAGCCCCA

101 GGGCATCCTG CAGGGGGTGC TGGGACACCA GCTGGCCTTC AAGGTCTCTG

151 CCTCCCTCCA GCCACCCCAC TACACGCTGC TGGGATCCTG GATCTCAGCT

201 CCCTGGCCGA CAACACTGGC AAACTCCTAC TCATCCACGA AGGCCCTCCT

251 GGGCATGGTG GTCCTTCCCA GCCTGGCAGT CTGTTCCTCA CACACCTTGT

301 TAGTGCCCAG CCCCTGAGGT TGCAGCTGGG GGTGTCTCTG AAGGGCTGTG

351 AGCCCCCAGG AAGCCCTGGG GAAGTGCCTG CCTTGCCTCC CCCCGGCCCT

401 GCCAGCGCCT GGCTCTGCCC TCCTACCTGG GCTCCCCCCA TCCAGCCTCC

451 CTCCCTACAC ACTCCTCTCA AGGAGGCACC CATGTCCTCT CCAGCTGCCG

501 GGCCTCAGAG CACTGTGGCG TCCTGGGGCA GCCACCGCAT GTCCTGCTGT

551 GGCATGGCTC AGGGTGGAAA GGGCGGAAGG GAGGGGTCCT GCAGATAGCT

601 GGTGCCCACT ACCAAACCCG CTCGGGGCAG GAGAGCCAAA GGCTGGGTGT

651 GTGCAGAGCG GCCCCGAGAG GTTCCGAGGC TGAGGCCAGG GTGGGACATA

701 GGGATGCGAG GGGCCGGGGC ACAGGATACT CCAACCTGCC TGCCCCCATG

751 GTCTCATCCT CCTGCTTCTG GGACCTCCTG ATCCTGCCCC TGGTGCTAAG

801 AGGCAGGTAA GGGGCTGCAG GCAGCAGGGC TCGGAGCCCA TGCCCCCTCA

851 CCATGGGTCA GGCTGGACCT CCAGGTGCCT GTTCTGGGGA GCTGGGAGGG

901 CCGGAGGGGT GTACCCCAGG GGCTCAGCCC AGATGACACT ATGGGGGTGA

951 TGGTGTCATG GGACCTGGCC AGGAGAGGGG AGATGGGCTC CCAGAAGAGG

1001 AGTGGGGGCT GAGAGGGTGC CTGGGGGGCC AGGACGGAGC TGGGCCAGTG

1051 CACAGCTTCC CACACCTGCC CACCCCCAGA GTCCTGCCGC CACCCCCAGA

1101 TCACACGGAA GATGAGGTCC GAGTGGCCTG CTGAGGACTT GCTGCTTGTC

1151 CCCAGGTCCC CAGGTCATGC CCTCCTTCTG CCACCCTGGG GAGCTGAGGG

1201 CCTCAGCTGG GGCTGCTGTC CTAAGGCAGG GTGGGAACTA GGCAGCCAGC

1251 AGGGAGGGGA CCCCTCCCTC ACTCCCACTC TCCCACCCCC ACCACCTTGG

1301 CCCATCCATG GCGGCATCTT GGGCCATCCG GGACTGGGGA CAGGGGTCCT

1351 GGGGACAGGG GTCCGGGGAC AGGGTCCTGG GGACAGGGGT GTGGGGACAG

FIG. 3f